

CLAIMS

We claim:

- 1 1. A personal radio service (PRS) device configured to engage in private, short-range
2 two-way voice communications with other PRS devices in range of the PRS device
3 comprising:
 - 4 a GPS receiver disposed in the PRS device; and,
 - 5 a radio frequency (RF) transceiver configured both to modulate and transmit voice
6 communications and positioning data received from said GPS receiver, and also to
7 demodulate voice communications and positioning data received from the other PRS
8 devices in range of the PRS device.
- 1 2. The PRS device of claim 1, further comprising:
 - 2 a positioning information processor for processing positioning data received from
3 said GPS receiver.
- 1 3. The PRS device of claim 1, further comprising an encoder/decoder circuit for
2 encoding positioning data for transmission by said RF transceiver.
- 1 4. The PRS device of claim 3, further comprising an identification tone generator for
2 generating identification tones, said encoder encoding said positioning data in said
3 generated identification tones for transmission by said RF transceiver.

1 5. The PRS device of claim 1, further comprising:
2 a positioning information processor for processing said positioning data relative to
3 an absolute location in a map; and,
4 a visual display for displaying both said map and said processed positioning data
5 overlain on said map.

1 6. The PRS device of claim 1, further comprising:
2 a visual display for displaying position information based upon said positioning data.

1 7. The PRS device of claim 6, wherein said displayed position information comprises
2 a bearing and range of another PRS device with which the PRS device is engaged in
3 private, short-range, two-way voice communications.

1 8. The PRS device of claim 1, wherein the PRS device is a Citizens Band (CB) radio
2 services device configured to engage in private, short-range two-way voice
3 communications with another CB Radio Services device in range of said CB Radio
4 Services device;

1 9. The PRS device of claim 1, wherein the PRS device is a General Mobile Radio
2 Services (GMRS) device configured to engage in private, short-range two-way voice
3 communications with another GMRS device in range of said GMRS device;

4 10. The PRS device of claim 1, wherein the PRS device comprises a Family Radio
5 Services (FRS) device configured to engage in private, short-range two-way voice
6 communications with another FRS device in range of said FRS device;

1 11. In a Personal Radio Services (PRS) device, a PRS communications method
2 comprising the steps of:

3 establishing a private, two-way, short-range voice communications link with at least
4 one other PRS device;

5 establishing a data link with a positioning data transmitter and receiving positioning
6 data from said positioning data transmitter;

7 processing said positioning data to determine location-based information associated
8 with the PRS device; and,

9 displaying said location-based information in the PRS device.

1 12. The method of claim 11, further comprising the steps of:

2 modulating said positioning data onto a carrier signal which can be transmitted over
3 said private, two-way, short-range voice communications link, and transmitting said
4 modulated positioning data to said another PRS device;

5 receiving modulated positioning data from said at least one other PRS device over
6 said private, two-way short-range voice communications link, and demodulating said
7 received modulated positioning data;

8 processing said demodulated positioning to determine further location-based
9 information associated with said at least one other PRS device; and,
10 displaying said further location-based information in the PRS device,
11 whereby said displaying of said location-based information and said further location-
12 based information can indicate a relative position of each PRS device participating in said
13 two-way short-range voice communications link.

1 13. The method of claim 12, wherein said modulating step comprises the steps of:
2 encoding said positioning data in an identification tone; and,
3 modulating said identification tone onto a carrier signal which can be transmitted
4 over said private, two-way, short-range voice communications link; and,
5 transmitting said modulated positioning data to said another PRS device.

1 14. The method of claim 12, wherein said demodulating step comprises the steps of:
2 receiving a modulated identification tone in a carrier signal from said another PRS
3 device over said private, two-way short-range voice communications link;
4 demodulating said received modulated identification tone; and,
5 decoding positioning data in said identification tone.

1 15. The method of claim 1, further comprising the step of:
2 encoding said positioning data using a privacy code prior to said transmission, said
3 privacy code restricting access to said positioning data by other PRS devices.

4 16. A machine readable storage having stored thereon a computer program comprising
5 a routine set of instructions for performing the steps of:
6 establishing a private, two-way, short-range voice communications link with at least
7 one other PRS device;
8 establishing a data link with a positioning data transmitter and receiving positioning
9 data from said positioning data transmitter;
10 processing said positioning data to determine location-based information associated
11 with said at least one other PRS device; and,
12 displaying said location-based information.

1 17. The machine readable storage of claim 16, further comprising the steps of:
2 modulating said positioning data onto a carrier signal which can be transmitted over
3 said private, two-way, short-range voice communications link, and transmitting said
4 modulated positioning data to said at least one other PRS device;
5 receiving modulated positioning data from said at least one other PRS device over
6 said private, two-way short-range voice communications link, and demodulating said
7 received modulated positioning data;
8 processing said demodulated positioning to determine further location-based
9 information associated with said at least one other PRS device; and,
10 displaying said further location-based information.

1 18. The machine readable storage of claim 17, wherein said modulating step comprises
2 the steps of:

3 encoding said positioning data in an identification tone; and,
4 modulating said identification tone onto a carrier signal which can be transmitted
5 over said private, two-way, short-range voice communications link; and,
6 transmitting said modulated positioning data to said at least one other PRS device.

1 19. The machine readable storage of claim 17, wherein said demodulating step
2 comprises the steps of:

3 receiving a modulated identification tone in a carrier signal from said at least one
4 other PRS device over said private, two-way short-range voice communications link;
5 demodulating said received modulated identification tone; and,
6 decoding positioning data in said identification tone.

1 20. The machine readable storage of claim 16, further comprising the step of:
2 encoding said positioning data using a privacy code prior to said transmission, said
3 privacy code restricting access to said positioning data by other PRS devices.